

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
5 February 2004 (05.02.2004)

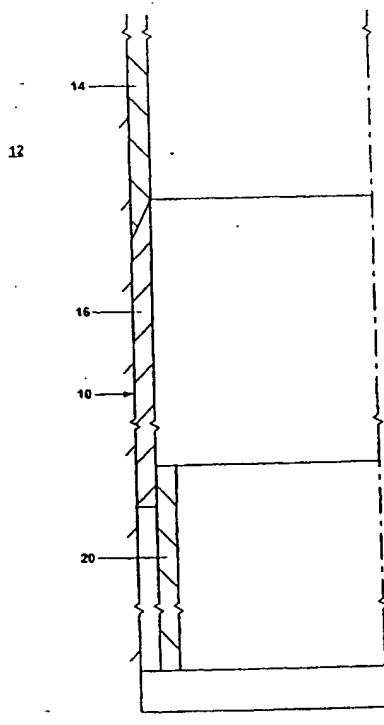
PCT

(10) International Publication Number  
**WO 2004/011776 A3**

- (51) International Patent Classification<sup>7</sup>: **E21B 7/20**, Lance [US/US]: 934 Caswell Court, Katy, TX 77450 (US).
- (21) International Application Number: **PCT/US2003/020870** (74) Agents: **MATTINGLY, Todd et al.**; Haynes and Boone, LLP, Suite 3100, 901 Main Street, Dallas, TX 75202 (US).
- (22) International Filing Date: **2 July 2003 (02.07.2003)** (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data: **60/399,240** **29 July 2002 (29.07.2002)** **US**
- (71) Applicant (*for all designated States except US*): **ENVEN- TURE GLOBAL TECHNOLOGY [US/US]**; 16200 A. Park Row, Houston, TX 77084 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): **COOK, Robert**, (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

[Continued on next page]

(54) Title: **METHOD OF FORMING A MONO DIAMETER WELLBORE CASING**



(57) Abstract: A method of forming a wellbore casing that includes positioning a first wellbore casing (14) within and coupling to a borehole (10), positioning a second wellbore casing (16) within the borehole that overlaps with and is coupled to the first wellbore casing (14), positioning a tubular liner (18) within the borehole that overlaps with and is coupled to at least a portion of the second wellbore casing (16), extending the length of the borehole (10), decoupling the liner (18) from the second casing (16) and removing the liner from the borehole, and positioning a third wellbore casing (20) within the borehole that overlaps with and is coupled to the second wellbore casing (16).

WO 2004/011776 A3

**BEST AVAILABLE COPY**

SE, SI, SK, TR). OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:  
14 October 2004

**Declaration under Rule 4.17:**

— of inventorship (Rule 4.17(iv)) for US only

**Published:**

— with international search report  
— with amended claims

Date of publication of the amended claims: 25 November 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

## AMENDED CLAIMS

[received by the International Bureau on 20 July 2004 (20.07.04);  
claims 21 to 30 added]

21. A method of forming a wellbore casing within a borehole that traverses a subterranean formation, comprising:
- positioning a tubular liner within the borehole;
  - extending the length of the borehole;
  - removing the tubular liner from the borehole;
  - positioning a wellbore casing within the borehole; and
  - coupling the wellbore casing to the borehole.
22. A method of forming a wellbore casing within a borehole that traverses a subterranean formation, comprising:
- positioning a first wellbore casing within and coupling the first wellbore casing to the borehole;
  - positioning a tubular liner within the borehole that overlaps with and is coupled to at least a portion of the first wellbore casing;
  - extending the length of the borehole;
  - decoupling the tubular liner from the first wellbore casing and removing the tubular liner from the borehole; and
  - positioning a second wellbore casing within the borehole that overlaps with and is coupled to the first wellbore casing.
23. A system for forming a wellbore casing within a borehole that traverses a subterranean formation, comprising:
- means for positioning a tubular liner within the borehole;
  - means for extending the length of the borehole;
  - means for removing the tubular liner from the borehole;
  - means for positioning a wellbore casing within the borehole; and
  - means for coupling the wellbore casing to the borehole.
24. A system for forming a wellbore casing within a borehole that traverses a subterranean formation, comprising:
- means for positioning a first wellbore casing within and coupling the first wellbore casing to the borehole;
  - means for positioning a tubular liner within the borehole that overlaps with and is coupled to at least a portion of the first wellbore casing;
  - means for extending the length of the borehole;

means for decoupling the tubular liner from the first wellbore casing and removing the tubular liner from the borehole; and  
means for positioning a second wellbore casing within the borehole that overlaps with and is coupled to the first wellbore casing.

25. A method of forming a wellbore casing within a borehole that traverses a subterranean formation, comprising:

positioning a first wellbore casing within and coupling the first wellbore casing to the borehole;

positioning a second wellbore casing within the borehole that overlaps with and is coupled to the first wellbore casing;

preventing the second wellbore casing from collapsing;

extending the length of the borehole; and

positioning a third wellbore casing within the borehole that overlaps with and is coupled to the second wellbore casing.

26. A method of forming a wellbore casing within a borehole that traverses a subterranean formation, comprising:

preventing the borehole from collapsing;

extending the length of the borehole;

positioning a wellbore casing within the borehole; and

coupling the wellbore casing to the borehole.

27. A method of forming a wellbore casing within a borehole that traverses a subterranean formation, comprising:

positioning a first wellbore casing within and coupling the first wellbore casing to the borehole;

preventing the first wellbore casing from collapsing;

extending the length of the borehole; and

positioning a second wellbore casing within the borehole that overlaps with and is coupled to the first wellbore casing.

28. A system for forming a wellbore casing within a borehole that traverses a subterranean formation, comprising:

means for positioning a first wellbore casing within and coupling the first wellbore casing to the borehole;

means for positioning a second wellbore casing within the borehole that overlaps with and is coupled to the first wellbore casing;  
means for preventing the second wellbore casing from collapsing;  
means for extending the length of the borehole; and  
means for positioning a third wellbore casing within the borehole that overlaps with and is coupled to the second wellbore casing.

29. A system for forming a wellbore casing within a borehole that traverses a subterranean formation, comprising:

means for preventing the borehole from collapsing;  
means for extending the length of the borehole;  
means for positioning a wellbore casing within the borehole; and  
means for coupling the wellbore casing to the borehole.

30. A system for forming a wellbore casing within a borehole that traverses a subterranean formation, comprising:

means for positioning a first wellbore casing within and coupling the first wellbore casing to the borehole;  
means for preventing the first wellbore casing from collapsing;  
means for extending the length of the borehole; and  
means for positioning a second wellbore casing within the borehole that overlaps with and is coupled to the first wellbore casing.

**BEST AVAILABLE COPY**

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
5 February 2004 (05.02.2004)

PCT

(10) International Publication Number  
WO 2004/011776 A3

(51) International Patent Classification<sup>7</sup>: E21B 7/20,  
19/16, 43/10

Lance [US/US]: 934 Caswell Court, Katy, TX 77450  
(US).

(21) International Application Number:  
PCT/US2003/020870

(74) Agents: MATTINGLY, Todd et al.; Haynes and Boone,  
LLP, Suite 3100, 901 Main Street, Dallas, TX 75202 (US).

(22) International Filing Date: 2 July 2003 (02.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/399,240 29 July 2002 (29.07.2002) US

(71) Applicant (for all designated States except US): ENVEN-  
TURE GLOBAL TECHNOLOGY [US/US]: 16200 A,  
Park Row, Houston, TX 77084 (US).

(72) Inventor; and

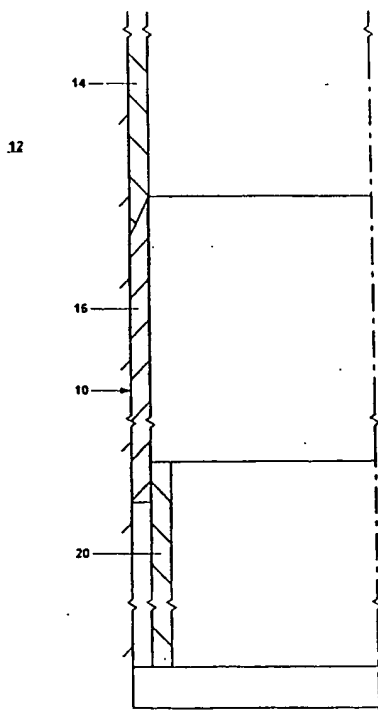
(75) Inventor/Applicant (for US only): COOK, Robert,

(81) Designated States (national): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,  
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

[Continued on next page]

(54) Title: METHOD OF FORMING A MONO DIAMETER WELLBORE CASING



(57) Abstract: A method of forming a wellbore casing that includes positioning a first wellbore casing (14) within and coupling to a borehole (10), positioning a second wellbore casing (16) within the borehole that overlaps with and is coupled to the first wellbore casing (14), positioning a tubular liner (18) within the borehole that overlaps with and is coupled to at least a portion of the second wellbore casing (16), extending the length of the borehole (10), decoupling the liner (18) from the second casing (16) and removing the liner from the borehole, and positioning a third wellbore casing (20) within the borehole that overlaps with and is coupled to the second wellbore casing (16).

WO 2004/011776 A3

BEST AVAILABLE COPY



SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:  
14 October 2004

**Declaration under Rule 4.17:**

— of inventorship (Rule 4.17(iv)) for US only

**Published:**

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/20870

## A. CLASSIFICATION OF SUBJECT MATTER.

IPC(7) : E21B 7/20, 19/16, 43/10  
US CL : 175/171; 166/380, 207, 208

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 175/171; 166/380, 207, 208, 206, 216, 217, 277

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST: wellbore, casing, coupling, liner, decoupling, expanding, mono diameter

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 1,880,218 A (SIMMONS) 1 October 1930 (01.10.1930), Figures 3 and 4.	1, 3, 4, 6, 7, 11, 13, 14, 16, 17, 19, 20
A	US 6,543,552 B1 (METCALFE et al) 8 April 2003 (08.04.2003), Figures 1-5.	1, 2, 11, 12
A	US 4,483,399 A (COLGATE) 20 November 1984 (20.11.1984), Figure 2.	1, 11
A	US 6,598,678 B1 (SIMPSON et al) 29 July 2003 (29.07.2003), Figures 13 and 14.	1, 2, 11, 12
A	US 6,550,539 B2 (MAGUIRE et al) 22 April 2003 (22.04.2003), Figures 4a-4f.	1, 2, 11, 12
A	US 6,070,671 A (CUMMING et al) 6 June 2000 (06.06.2000), Figures 1-4.	3, 4, 6, 7, 9, 10, 13, 14, 16, 17, 19, 20

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

17 October 2003 (17.10.2003)

Date of mailing of the international search report

24 MAY 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
Facsimile No. (703)305-3230

Authorized officer

David Baggett

Telephone No. 703-306-4198

Form PCT/ISA/210 (second sheet) (July 1998)

BEST AVAILABLE COPY